

IN THE CLAIMS:

Amend claims 1 and 134 and cancel claims 2 and 135¹ without prejudice or admission as shown in the following listing of claims, which replaces all previous versions and listings of claims in this application.

1. (currently amended) A near-field optical head comprising:

a planar substrate having a first surface, a second surface disposed opposite to the first surface, and an inverted conical or pyramidal hole extending through the first and second surfaces, the inverted conical or pyramidal hole having at least one fine aperture formed at an apex thereof and disposed in the first surface and having at least one curved slant surface;

an optical waveguide ~~disposed directly on the second surface~~ extending into the inverted conical or pyramidal hole of the planar substrate for propagating light along an optical path; and

a mirror disposed in the optical waveguide for bending in the direction of the fine aperture the optical path of the light propagated through the optical waveguide.

2. - 6. (canceled).

¹ Claims 3-6, 10-119 and 123-130 were canceled in previous amendments.

7. (previously presented) A near-field optical head according to claim 1; wherein the curved slant surface decreases in slant degree toward the fine aperture.

8. (previously presented) A near-field optical head according to claim 7; wherein the mirror or the optical waveguide focuses light to the fine aperture or collimates light from the fine aperture.

9. (previously presented) A near-field optical head according to claim 8; wherein the optical waveguide comprises a core and a clad disposed over the core.

10. - 119. (canceled).

120. (previously presented) A near-field optical head according to claim 1; wherein the optical waveguide is integrally connected to the second surface of the planar substrate.

121. (previously presented) A near-field optical head according to claim 1; wherein the near-field optical head is an air floating-type optical head.

122. (previously presented) A near-field optical head according to claim 1; wherein the optical waveguide is bonded to the second surface of the planar substrate.

123. - 130. (canceled).

131. (previously presented) A near-field optical head according to claim 1; wherein the curved slant surface is formed between first and second tapers of the inverted conical or pyramidal hole, the first taper having a slant angle of approximately 55 degrees relative to the first surface of the planar substrate and the second taper having a slant angle of approximately from 10 degrees to 30 degrees relative to the first surface of the planar substrate.

132. (previously presented) A near-field optical head according to claim 131; wherein the second taper is disposed closer to the fine aperture than is the first taper.

133. (previously presented) A near-field optical head according to claim 131; wherein the first taper originates from the second surface of the planar substrate.

134. (currently amended) A near-field optical head comprising:

a substrate having an inverted conical or pyramidal hole penetrating therethrough, the hole being formed by at least one curved slant surface and having at least one fine aperture at an apex thereof;

an optical waveguide disposed directly on a surface extending into the inverted conical or pyramidal hole of the substrate for propagating light along an optical path; and

a mirror disposed in the optical waveguide for bending in the direction of the fine aperture the optical path of the light propagated through the optical waveguide.

135. (canceled).

136. (previously presented) A near-field optical head according to claim 134; wherein the curved slant surface decreases in slant degree toward the fine aperture.

137. (previously presented) A near-field optical head according to claim 136; wherein the optical waveguide focuses light to the fine aperture or collimates light from the fine aperture.

138. (previously presented) A near-field optical head according to claim 137; wherein the optical waveguide comprises a core and a clad disposed over the core.

139. (previously presented) A near-field optical head according to claim 134; wherein the optical waveguide is integrally connected to the surface of the substrate.

140. (previously presented) A near-field optical head according to claim 134; wherein the near-field optical head is an air floating-type optical head.

141. (previously presented) A near-field optical head according to claim 134; wherein the optical waveguide is bonded to the surface of the substrate.

142. (previously presented) A near-field optical head according to claim 134; wherein the curved slant surface is formed between first and second tapers of the inverted conical or pyramidal hole, the first taper having a slant angle of approximately 55 degrees relative to the surface of the substrate and the second taper having a slant angle of approximately from 10 degrees to 30 degrees relative to the surface of the substrate.

143. (previously presented) A near-field optical head according to claim 142; wherein the second taper is disposed closer to the fine aperture than is the first taper.